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# The Commonwealth of Massachusetts

Executive Office of Health and Human Services

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Childhood Lead Poisoning  
Prevention Program  
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GOVERNMENT DOCUMENTS COLLECTION  
 MASS. 1561 Q: En 13/draft  
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 3/23/1994  
 105 CMR 460.115: Process for Approval of Encapsulants for the  
 Abatement of Lead Paint. Commonwealth of Massachusetts, Department  
 of Public Health. 3/23/94.

Encapsulation Product Performance Protocol for Interior Use.  
 Pursuant to Regulations for Lead Poisoning Prevention and Control  
105 CMR 460.115: Process for Approval of Encapsulants for the  
Abatement of Lead Paint. Commonwealth of Massachusetts, Department  
 of Public Health. 3/23/94.

This protocol is applicable to encapsulants as defined in 105 CMR 460.020 for use in abating lead based paint.

Encapsulants with or without structural reinforcement for interior use must pass the minimum standards for performance properties established by this protocol to be approved for use in abating lead based paint in the Commonwealth of Massachusetts. Products which do not meet the minimum criteria for any physical property performance characteristic will not be approved.

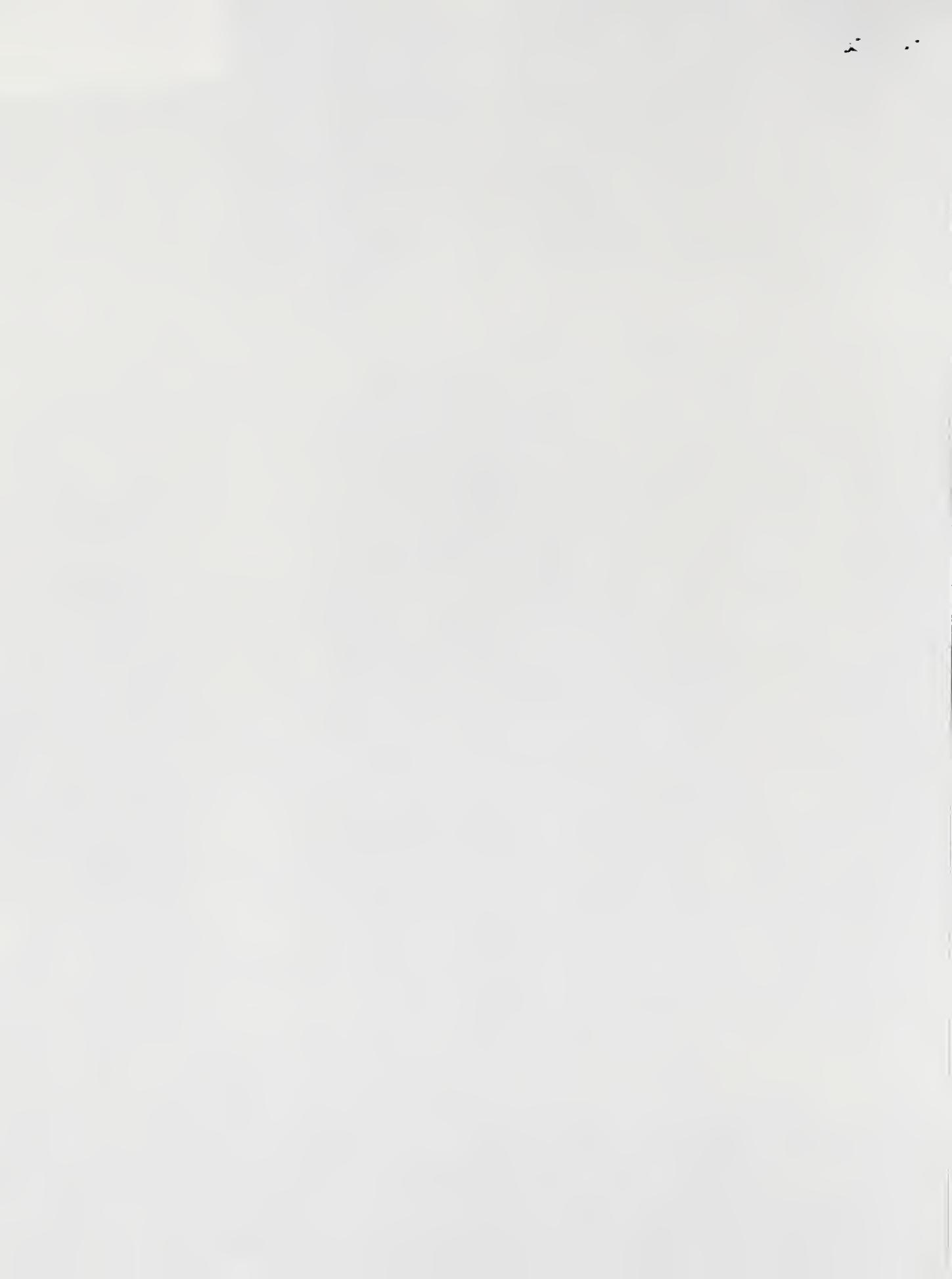
### Encapsulant Product Performance Standard Properties:

The following encapsulant product performance property tests are required to be performed on all liquid encapsulant systems. For detailed information on conducting performance tests, refer to the American Society for Testing and Materials test method for each performance property or other indicated test method.

All test samples of a given product will be prepared in a fashion determined by the certification organization and have identical dry film thickness per manufacturer's recommendation. Where the manufacturer recommends a range of film thickness, tests will be performed on panels with film thickness at the low point of the range. The samples should be cured according to the manufacturer's recommended cure conditions under standard laboratory conditions, including the recommended dry-film thickness and dry/cure time and conditions should be identical for all specimens.

1. **Impact Resistance:** ASTM test method D 2794. Test specimens prepared on standard zinc-phosphate treated steel test panels, .032 inch (.81 mm), four test panels minimum, using 0.625 inch

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(15.9 mm) punch diameter, direct impact (i.e. coating side up). The minimum performance criteria for passing is that there is no surface cracking of the applied encapsulant at 80 inch-pounds (90 kilogram-meters) when examined visually at 5X magnification.

2. **Adhesion:** ASTM Test Method D 3359 will be used for liquid products. The test samples will be prepared on tin-plated steel test panels, 0.01 inch (.25 mm). A minimum of three tests will be performed. Minimum performance criteria for passing is a rating score of 5A or 5B.

ASTM Test Method D 4541 will be used for reinforced products. The test samples will be prepared on 0.25 inch (6.4 mm) steel or aluminum panels. A minimum of three tests will be performed. Minimum performance criteria for passing is a pull-off strength of 100 psi.

3. **Dry Abrasion Resistance:** ASTM test method D 4060. Use CS 17 wheel and 1000 gram weight on two 4" x 4" (101.6 mm x 101.6 mm) cold-rolled steel panels of thickness 0.032 in. (0.64 mm). Minimum performance criteria for passing is no more than 20% loss of film thickness after 1,000 cycles.
4. **Flexibility:** ASTM test method D 522. The test specimens are tin-plated steel panels of 0.01 inch (0.25 mm) thick. A minimum of three panels are to be tested. Results are to be reported.
5. **Water and chemical resistance:** ASTM D 1308. Tests are to be run on glass panels.

Substances are to be applied on the test panel and covered with watch glass for 24 hours. The substances to be spot tested include 50% ethyl alcohol, vinegar (3% Acetic), 5% sodium hydroxide or potassium hydroxide, 5% HCl, 5% citric acid, 2% detergent solution, shortening, cola beverage, lubricating oils and household cleaners. One test will be run per reagent. The minimum performance criteria for passing is absence of blistering or other visual defects, determined by visual examination conducted on each test sample immediately after removal of the watch glass and when rubbed with a tongue depressor after a 24 hour recovery period.



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The immersion test for liquid coatings will be run on a tin-plated steel panel 0.01 inch (0.25 mm) thick. A panel will be placed in a beaker containing distilled water to a depth of up to 50% the height of the panel for 24 hours. The panel should be air dried for 2 hours and tested for adhesion in accordance with D 3359 on a minimum of three locations. Passing is a minimum rating of 5 A or 5 B.

For reinforced coatings the substrate will be .025 inches thick steel or aluminum. The immersion test will be as above. Adhesion testing will be performed using D 4541. Passing is a minimum pull-off strength of 100 psi.

6. **Surface Burning Characteristics:** ASTM test method E 84. A single test using Sterling board panels or the equivalent will be performed. Minimum performance criteria for passing is a flame spread index of less than 25 and a smoke development rating of less than 50.
7. **Volatile Organics Content:** ASTM Practice D 3960, methods D1475, D2369, D 3792, and D4017. Findings are to be reported.
8. **Scrub resistance:** ASTM test method D 2486. Test will be run on duplicate black plastic panels. Minimum performance criteria for passing is no failure to substrate after 1200 cycles.
9. **Mildew resistance:** ASTM test method D 3273. Test to be run on minimum of three clear 0.50 x 3.0 x 4.0 inch pine panels. Minimum performance criteria for passing is rating of 3, determined in accordance with ASTM D 3274.
10. **Paintability:** Test run on tin-plated steel panels, .01 inch (0.25 mm) thick. The encapsulant is applied on the panel and the encapsulated panel is then painted with TT-P-29K. Adhesion Test ASTM D 3359 is to be run on one panel in a minimum of three locations. Repeat the test substituting a second coat of encapsulant for the paint and evaluate for intercoat adhesion.
11. **Water Vapor Permeability:** Determine the resistance to water vapor permeability in accordance with Test Method D 1653, Method A (Dry Cup Method, Condition A). A minimum of three samples shall be tested. Test as free film with a minimum thickness of 0.075 mm (0.003 inch). Results are to be reported.



12. **Viscoelastic Properties:** Determine viscoelastic properties in accordance with Test Method D 2370. Test shall be performed on free film, not less than 0.075 mm (0.003 inch) thick. A minimum of ten specimens shall be tested. Results are to be reported.

